

ITS Field Operational Test Summary

Ambassador Bridge Intelligent Transportation Border Crossing System

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Introduction

The Ambassador Bridge Intelligent Transportation Border Crossing System (ABBACS) ITS Field Operational Test demonstrates the use of ITS technologies to reduce the delays incurred by users of the Ambassador Bridge. This bridge crosses the Detroit River from Detroit, Michigan, in the United States to Windsor, Ontario in Canada. The project's goal is to enable commercial vehicles and daily commuters to cross a "transparent" international border. The main objective is to use ITS technology to facilitate the processing of vehicles and drivers through international border check points and to electronically pay bridge tolls.

The test operations commenced in May 1997 and are scheduled to be completed in November 1998, with the final report expected in March 1999.

Project Description

The international trade community and government officials responsible for customs, immigration, and transportation, must execute a complex set of transactions and inspections in order for vehicles, drivers, and cargo to cross legally and safely from one country into another. Because many of these transactions are conducted manually, the time required to process an individual shipment can be significant. At land ports, such as the Ambassador Bridge, commercial vehicle traffic volume has grown to the point where lengthy processing delays are commonplace. These delays impact the trade community by increasing costs, and adversely affecting the efficiency of operations. The increasing volume of commercial vehicles also has potential safety implications. As part of the IBC (International Border Clearance) Program, the Federal Highway Administration has worked with representatives from the Michigan Department of Transportation, the Ambassador Bridge, the US Treasury's North American Trade Automation Prototype (NATAP) program, and Canadian transportation officials to cooperatively address these issues.

The result is an IBC system that aims to significantly reduce administrative delays incurred by vehicles at international points of entry. The system also facilitates safety screening of commercial vehicles. The IBC system will facilitate trade and transport processing by supplanting current paper-based processes with one supported by electronic data interchange (EDI). It will address the safety of commercial vehicles operating in the State of Michigan, and throughout the US, by forwarding transport safety data obtained by the system to the nearest existing commercial vehicle weight and inspection facility. This data will be in a format consistent with those under development under the Commercial Vehicle Information Systems and Networks (CVISN) program, and will allow the Michigan State Police to effectively screen incoming vehicles for safety compliance.

The IBC system integrates dedicated short-range communications (DSRC) capabilities for trade and transport related commercial vehicle electronic screening, with toll collection and dedicated commuter lanes. The system polls transponders installed in approaching vehicles. Based on the vehicle identification transmitted by the transponder, the system accesses stored information to

debit toll accounts and allow pre-cleared commuter vehicles and pre-screened commercial vehicles to pass without stopping. The system supports the exchange of information between the trade community and regulatory agencies responsible for customs, immigration, and transportation. Figure 1 shows the ABBCS overview

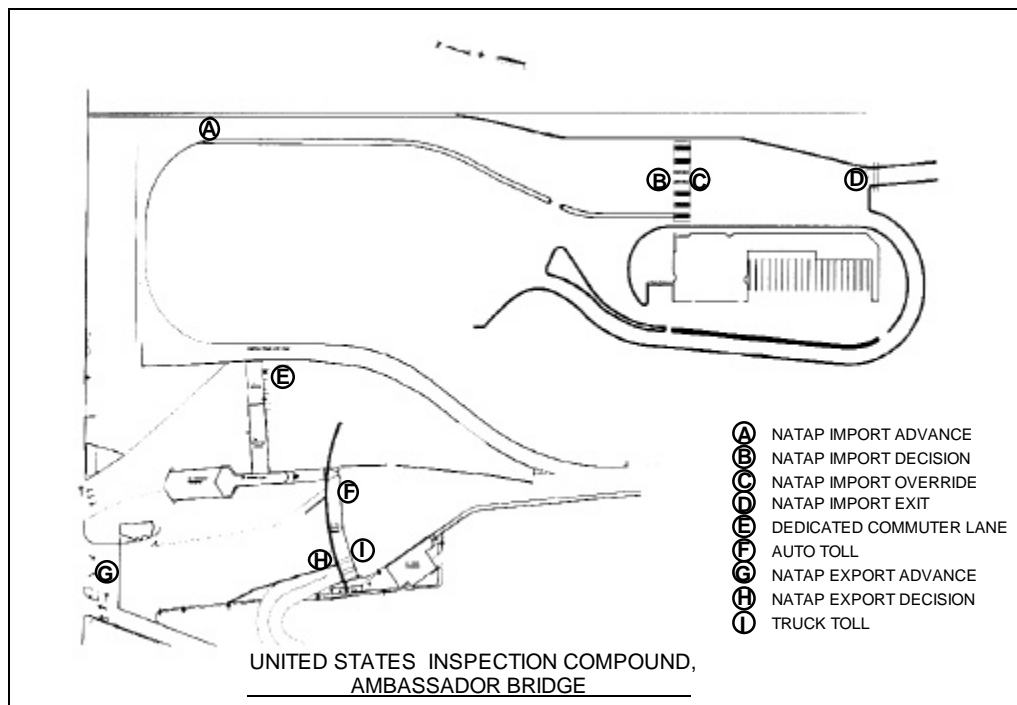


Figure 1: IBC System Overview

As a commercial vehicle approaches the border facility, the system electronically screens enrolled vehicles at the advance reader location using DSRC. The DSRC reads carrier, vehicle and cargo identification data, in the form of a trip/load number, from a transponder installed in the vehicle cab. The reader forwards this information through the IBC system to the NATAP system. When the vehicle reaches the US Customs primary inspection point, the decision reader reads the transponder a second time. This action prompts the IBC system to relay information received from the NATAP system to the display in the customs primary inspection booth. The NATAP information consists of immigration and trade related documentation regarding the status of the carrier, driver and cargo. Based on this information, the customs inspector instructs the driver to proceed either to the compound exit or to secondary inspection. A red or green signal, displayed both on the transponder and on a traffic signal adjacent to the primary inspection booth, relays the inspector's instructions to the driver. As the vehicle leaves the compound, the exit reader reads the transponder a third and final time. If the vehicle has completed all inspections satisfactorily and all required documentation is in order, the system gives the driver a green light to proceed.

The evaluation of the test will focus on the following goal areas:

- Assessment of the technical performance capabilities of the technologies
- Assessment of the user acceptance of the services and technologies being provided
- Evaluation of potential impacts of the services and technologies to the transportation processes and interfaces at all jurisdictional levels

- Documentation of transportation, institutional, and technical lessons learned

Test Status

System operation began in May 1997. Testing will conclude in November 1998. The evaluation will begin in the first quarter of 1998, with the final report scheduled for March 1999.

Test Partners

Detroit International Bridge Company

Federal Highway Administration

Michigan Department of Transportation

TransCore

References

None published